ABSTRACT

Apparatus for detecting vibration of an object adapted to rotate includes one or more vibration processors selected from: a direction-change processor adapted to detect changes in a direction of rotation of the object, a direction-agreement processor adapted to identify a direction of rotation of the object in at least two channels and identify an agreement or disagreement in direction of rotation identified by the at least two channels, and a phase-overlap processor adapted to identify overlapping signal regions in signals associated with the rotation of the object. A method for detecting the vibration of the object includes generating at least one of a direction-change output signal with the direction-change processor, generating a direction-agreement output signal with the direction-agreement processor, and generating a phase-overlap output signal with the phase-overlap processor, each indicative of the vibration of the object.